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Therapeutic Brief

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Heart failure: Getting the best quality of life

Therapeutic advances in the management of heart failure with reduced ejection fraction (HFrEF) have improved outcomes for patients but have also increased decision-making complexity for doctors.¹

An ageing population with multimorbidity and polypharmacy adds to this complexity.²⁻⁴ Australian Government Department of Veterans' Affairs (DVA) Veteran Card holders with heart failure have an average age of 87 years⁵ and 7 comorbidities.^{6,7}

Even when perceived to be stable, patients with heart failure are at a high risk of morbidity and premature mortality.^{1,3} In Australia heart failure hospitalisations are followed by increasing re-admissions and mortality.⁸



An estimated
20%

of people with heart failure are re-admitted to hospital within 30 days of being discharged.⁸



An estimated
56%

of people with heart failure are re-admitted to hospital within one year of being discharged.⁸



An estimated
50%

of people with heart failure die within five years of their first admission to hospital.⁹

A key component to reducing hospital admissions and improving survival in people with heart failure with HFrEF is to optimise use of guideline-directed first-line medicines.^{10,11}

Key points

- Provide a coordinated care plan and review every three months, and refer your patient for a Medicines Review to reduce hospital admissions
- Check for medicines that may worsen heart failure and, where possible, cease or reduce the dose
- Maximise doses of angiotensin converting enzyme inhibitors and heart failure specific beta-blockers, unless contraindicated or not tolerated
- Include a low-dose mineralocorticoid receptor antagonist (aldosterone antagonist) unless contraindicated or not tolerated
- Monitor renal function, serum potassium and blood pressure, before and after starting medicines or adjusting doses
- Review patients after their discharge from hospital, ideally within seven days, to assess fluid status and continue up-titrating heart failure medicines
- Develop a partnership with patients to support self-care and identify what matters most to people with heart failure and multimorbidity to minimise treatment burden and improve quality of life

✓ Optimise heart failure medicines to get the best outcomes

Treatment with a combination of an angiotensin converting enzyme (ACE) inhibitor, a heart failure specific beta-blocker and a low-dose mineralocorticoid receptor antagonist (MRA) (aldosterone antagonist) has been shown to reduce hospital admissions and improve survival in heart failure patients with a moderate to severe reduction in left ventricular ejection fraction (LVEF).¹⁰

Australian guidelines recommend these treatments in all patients with HFrEF associated with a LVEF of 40% or less, unless contraindicated or not tolerated, and may also be considered in patients with HFrEF associated with a LVEF between 41% to 49%.^{3, 12}

Patients with HFrEF benefit from achieving targeted doses of guideline-directed medicines (see Box 1).^{1, 13} Achieving target doses may not be possible or may be difficult for some patients, particularly those who are older and have multimorbidity, frailty, worsening renal impairment or baseline hypotension.^{1, 13} If target doses cannot be achieved, up-titrating to the best-tolerated dose still provides benefits.^{1, 14}

Some patients, especially those with advanced heart failure and a short life expectancy, may make a personal decision not to continue up-titrating medicines.¹

If your patient has symptomatic hypotension while up-titrating medicines, consider that loop diuretics may be causing over-diuresis, or that other medicines may be contributing, for example a glyceryl trinitrate patch or a calcium channel blocker. Reduce the dose of these medicines or cease before reducing the dose of a heart failure medicine that reduces mortality and morbidity.^{1, 3}

Patient education, frequent monitoring of blood pressure, electrolytes, in particular serum potassium, kidney function, and follow-up of clinical status and tolerability of medicines, with more gradual titration, may be needed to achieve target doses or best-tolerated doses in some patients.¹

Box 1. First-line therapies for patients with HFrEF^{3, 15, 16}

Angiotensin Converting Enzyme (ACE) inhibitor

Start with an ACE inhibitor at a low dose, or an angiotensin receptor blocker (ARB) if an ACE inhibitor is not tolerated (may be due to cough or angioedema) and aim to double the dose every two weeks, depending on how the patient tolerates the medicine.^{3, 15} A loop diuretic may also be needed initially to reduce congestion; once euvolaemic, reduce the dose of the diuretic or stop.¹²



Heart failure specific beta-blocker

Add a heart failure specific beta-blocker (carvedilol, controlled or extended release metoprolol, bisoprolol or nebivolol)³ once the patient is euvolaemic at the same time or after an ACE inhibitor.^{15, 16} Start with a low dose and increase slowly every two to four weeks providing the patient remains stable.^{3, 15}



Mineralocorticoid receptor antagonist (MRA)

Add spironolactone or eplerenone 25 mg orally, daily and up-titrate in four to eight weeks, to maximum dose of 50 mg orally, daily (avoid starting an MRA if serum potassium is higher than 5 mmol/L or creatinine clearance is less than 30 mL/minute).^{3, 16}



Up-titrate medicines to recommended target doses

Continue to up-titrate the ACE inhibitor and beta-blocker, including in patients started on low doses in hospital to targeted doses or until maximum tolerated doses are achieved, unless contraindicated or not tolerated¹ (consider up-titrating the beta-blocker first unless congested or heart rate is less than 50 beats per minute).³

Consider referring patients who are stable and have not yet achieved maximum tolerated doses to a heart failure nurse practitioner, or if available, to an advanced practice nurse-led medicines titration clinic.³ They use a pre-approved medicines titration protocol and discuss individual cases with a supporting cardiologist or physician or general physician if in rural or remote areas.³

Alternatively, develop a protocol for your practice nurses to follow with your guidance.

Repeat an echocardiogram in three to six months of starting medicines (usually ordered by the cardiologist).¹²



Angiotensin receptor neprilysin inhibitor (ARNI) - sacubitril-valsartan

If unsure about starting sacubitril-valsartan, refer to the cardiologist for advice

Change the ACE inhibitor or ARB to sacubitril-valsartan in patients who are still symptomatic with New York Heart Association Class II, III or IV, have a LVEF equal to or less than 40%, and whether or not the patient is on an MRA.³

Start with a low or moderate dose twice a day and up-titrate by doubling the dose every two to four weeks, depending on how the patient tolerates the medicine, to the recommended targeted dose.^{3, 15} (If serum potassium is higher than 5.4 mmol/L, correct before commencing).¹⁵



Additional treatment options, including device therapy, may be considered at this point in selected patients if still symptomatic.³

✓ Optimise heart failure medicines to get the best outcomes cont.

⌚ Starting or increasing the dose of an ACE inhibitor

- Review your patient every two weeks while up-titrating the ACE inhibitor.³
- Monitor blood pressure, estimated glomerular filtration rate (eGFR) and serum potassium, before starting, and one to two weeks after or when increasing the dose, and each six months thereafter or as clinically indicated.^{3, 15, 16}
- A rise in serum creatinine of up to 30% can occur, but if not progressive, is not a reason to cease therapy.³
- If a patient who is taking a fixed-dose combination of an ACE inhibitor or an ARB and a low-dose thiazide for hypertension develops HFrEF, consider ceasing the combination tablet and replacing it with an ACE inhibitor (or ARB if an ACE inhibitor is not tolerated), and a loop diuretic, if needed.¹⁶

⌚ Starting or increasing the dose of a beta-blocker

- Explain to patients that there may be a transient worsening of heart failure symptoms, including dyspnoea, fatigue and dizziness.¹

⌚ Adding a mineralocorticoid receptor antagonist

- Note that MRAs increase the risk of hyperkalaemia, particularly in patients with renal impairment and those taking an ACE inhibitor or an ARB.¹⁵
- Advise patients to avoid foods high in potassium and potassium supplements.^{3, 15}
- Monitor blood pressure, eGFR and serum potassium one to two weeks after initiating an MRA or increasing the dose, then every four weeks for 12 weeks, at six months and then six-monthly thereafter or if clinically indicated,³
 - if potassium is between 5.5 to 5.9 mmol/L, reduce the dose by half
 - if potassium is higher than 6.0 mmol/L, stop immediately and reintroduce at a lower dose when potassium is less than 5.0 mmol/L.¹⁵

⌚ Starting or increasing the dose of sacubitril-valsartan

- See Box 1 for when to consider commencing sacubitril-valsartan and liaise with the cardiologist if unsure about prescribing.
- Monitor blood pressure, renal function and serum potassium at one to two weeks and at six months thereafter or when clinically indicated.³
- When starting sacubitril-valsartan, consider reducing the dose of any loop diuretic.¹⁷
- **Advise your patient switching from an ACE inhibitor (not needed for an ARB) to sacubitril-valsartan, that a wash-out period of 36 hours is needed.**³ A simple way to ensure your patient is not confused about when to stop and start, is to ask them to take their last dose of the ACE inhibitor on the Friday and the first dose of the sacubitril-valsartan the following Monday.

⌚ Treating symptomatic fluid retention

- Use a loop diuretic, preferably oral furosemide, and start between 20 mg and 40 mg daily.³ Loop diuretics should never be used alone; they should be used in combination with an ACE inhibitor or an ARB, a heart failure specific beta-blocker and an MRA in most patients with heart failure with evidence of or a history of fluid retention.¹
- Up-titrate the dose to relieve congestion over days to weeks.³ Monitor the patient's response to therapy by measuring their weight and noting the presence or absence of orthopnoea, exertional dyspnoea and peripheral oedema. Reduce the dose until the patient's baseline dry weight is attained.^{3, 12, 18}
- After initiation or up-titration of a loop diuretic, assess renal function, blood pressure and electrolytes within two to three days.^{1, 16}
 - Older patients using diuretics are susceptible to electrolyte imbalances and orthostatic hypotension.¹⁵ Some patients,

especially those on fluid restrictions, may not drink sufficient fluids leading to over-diuresis and dehydration, dizziness and an increased risk of falling. Monitor fluid status closely and reduce the diuretic accordingly.

Managing patients with chronic heart failure with preserved ejection fraction

Conventional therapies used in patients with HFrEF have not been shown to improve survival in patients with heart failure with preserved ejection fraction (HFpEF).^{15, 19}

The main goals of treatment for patients with HFpEF are to relieve symptoms, improve quality of life, and reduce hospital admissions by managing:

- fluid retention and relieving symptoms with loop diuretics as needed or low-dose spironolactone, with close monitoring of renal function and blood pressure (patients with HFpEF are often more sensitive to loop diuretics than patients with HFrEF)²⁰
- associated comorbidities that commonly include ischaemic heart disease and hypertension, atrial fibrillation, diabetes, obesity and renal impairment²⁰
- hypertension with an ACE inhibitor or an ARB and a low-dose MRA.^{3, 12, 20}

✓ Provide early follow-up after discharge from hospital

Heart failure patients are most vulnerable to being re-admitted and poor outcomes after being discharged home from hospital, often because of poor sleep and nutrition, stress, ongoing symptoms, new treatments and inactivity.^{3, 8, 21}

• Review patients as soon as possible after their discharge from hospital, ideally within seven days to:

- Assess their fluid status and if needed, adjust the diuretic dose.
 - Check that no medicines have been inadvertently ceased or changed during their hospital stay. Explain new medicine regimens with patients as needed.
 - Continue up-titrating heart failure medicines started in hospital.¹² If your patient has HFrEF and is not on a heart failure specific beta-blocker and is euvoalaemic, consider starting one.³
- If your patient is taking a different beta-blocker for a comorbidity, for example ischaemic heart disease or hypertension, consider switching to a heart failure specific beta-blocker, or if unsure, seek advice from the cardiologist.^{3, 16}
- Check blood pressure and tolerability of medicines, and request biochemistry, especially kidney function and serum potassium.³
 - Refer for a Medicines Review (**see insert for details**) if there has been significant change to your patient's medicine regimen or if there is risk of confusion in managing the medicines regimen.²²
 - Reinforce the importance of self-care (see Box 2). Consider a sliding scale of diuretics for patients who are competent in self-managing their symptoms and daily weight measurements, to be used only as needed. If your patient uses the sliding scale, ask them to make an appointment for review.³
- Review and update their action plan to help them know what to do when they notice changes in their heart failure symptoms and when to seek medical attention. To access the Heart Foundation's 'My Heart Failure Action Plan', go to: <https://hnc.org.au/winter-strategy-2020/wp-content/uploads/2017/07/20170709-Heart-Failure-Action-Plan-Template-2nd-amendmentjg.pdf>
 - Consider if they would benefit from attending a cardiac rehabilitation program. To find a program near you, contact the Heart Foundation on 13 11 12 or go to: www.heartfoundation.org.au/cardiac-services-directory
 - **Refer to the insert *Partnering with your patient and their family or carer to get the best care outcomes* for details about providing a coordinated care plan such as DVA's Coordinated Veterans' Care (CVC) Program.**

Box 2. Promote and support patient self-care

Advise patients to:

- be familiar with their action plan and understand what to do when symptoms worsen
- weigh themselves each morning at the same time, preferably with digital scales, and report to you if their weight increases by 2 kilograms over 2 days^{3, 15}
- restrict added salt to less than 2 grams a day (less than 1 level teaspoon of salt a day)³
- restrict fluid intake to 1.5 litres a day if fluid retention is present³
- take medicines strictly as prescribed and to check with you before taking self-prescribed medicines, especially over-the-counter non-steroidal anti-inflammatory drugs and cold and flu remedies³
- self-monitor how they feel each day, and report worsening symptoms within 24 hours to you of:
 - **fluid overload**, including weight gain of 2 kilograms in 2 days, dyspnoea, orthopnoea or swelling in the feet, ankles or stomach
 - **symptoms of over-diuresis and dehydration**, including dizziness, fatigue, thirst, decreased urine output and increased urine concentration¹⁸
- call 000 for an ambulance if they experience pain, pressure, heaviness or tightness in the chest, arms, back, jaw, neck or shoulders²³
- make an appointment to see you within seven days after being discharged from hospital³
- talk with you if they are feeling down or overwhelmed.³

Full reference list available at: www.veteransmates.net.au